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The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MARIA M. KAPUSCINSKI
and ROBERT T. BIGGS

Appeal No. 95-3070
Application 07/907,078¹

ON BRIEF

Before JOHN D. SMITH, WEIFFENBACH and WARREN, *Administrative Patent Judges*.

WEIFFENBACH, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the decision of the examiner refusing to allow claims 1-6 and 9, which are the only claims remaining in the application. We reverse.

¹ Application for patent filed July 1, 1992.

The Claimed Subject Matter

The claimed subject matter is directed to a hydrogen backbone polymer holding two antioxidant groups. According to applicants, the combination of the two antioxidant groups forms a synergistic antioxidant composition. Claim 1 is representative of the claimed subject matter and is reproduced below:

1. A hydrogen backbone polymer holding two types of antioxidant groups which form synergistic antioxidant composition comprising pendant functional groups containing phenothiazine antioxidant and pendant functional groups containing aromatic amine antioxidant.

Prior Art References

The following prior art references are relied upon by the examiner in support of the rejections of the claims:

Kapuscinski et al. (Kapuscinski)	4,764,304	Aug. 16, 1988
Migdal et al. (Migdal)	5,075,383	Dec. 24, 1991
DeRosa et al. (DeRosa)	5,147,569	Sep. 15, 1992

The Rejections

Claims 1, 3, 5, 6 and 9 stand rejected under 35 U.S.C. § 102(e) as being anticipated by DeRosa.

Claims 1-6 and 9 stand rejected under 35 U.S.C. § 103 as being unpatentable over Migdal in view of Kapuscinski.

Claims 1-6 and 9 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for

failing to particularly pointing out and distinctly claim the subject matter which appellants regard as their invention.

Opinion

We have carefully considered the entire record in light of the respective positions advanced by appellants and by the examiner. For the reasons set forth below, we will not sustain any of the examiner's rejections.

ANTICIPATION BY DEROSA

The examiner rejected claims 1, 3, 5, 6 and 9 under 35 U.S.C. § 102(e) as being anticipated by DeRosa who discloses an antiwear, antioxidancy dispersant, lubricant additive compound comprising a backbone polymer onto which is grafted a glycidyl methacrylate having a pendent epoxide onto which an antioxidant such as a phenothiazine, diarylamine or a substituted phenol is added. It is the examiner's position that claim 1 of DeRosa discloses a grafted backbone polymer containing both phenothiazine and arylamine functional groups. We do not find that the record of the DeRosa patented file supports the examiner's position.

The pertinent portions of claim 1 in the DeRosa patent read as follows (the language added after the first action on the merits is underlined):

1. An antiwear, antioxidancy dispersant, lubricant additive composition prepared by the steps comprising:
 - (a) reacting a polymer prepared from ethylene and at least one (C₃-C₁₀) alpha-

monoolefin ..., said polymer being reacted with at least one olefinic epoxide acylating agent ... to form a reaction intermediate having an epoxide function within its structure; and
(b) reacting said reaction intermediate with each of the following substituted thiadiazoles ...;

- (i) a modified 1,3,4-thiadiazole containing a substituted phenol ...;
- (ii) a modified 1,3,4-thiadiazole containing a substituted diarylamine ...;
- (iii) Reacting [sic] said reaction intermediate in (A) [sic, (a)] with modified 1,3,4-thiadiazole containing substituted phenothiazole

In the first Office action on the merits in DeRosa, the examiner rejected the claims under 35 U.S.C. § 112, first and second paragraphs. One of the grounds for the rejection was that with respect to part (b) of claim 1, “it is not clear if the graft polymer of part () [sic, (a)] is further reacted with a mixture of components (i), (ii), and (iii) or if reacted with only one component selected from the group of (i), (ii) and (iii)” (DeRosa patented file, paper no. 2, p. 2). Counsel for DeRosa filed an amendment which added the language underlined in the portion of the claim 1 reproduced *surpa*, as well as, *inter alia*, amending claim 8. Although the remarks which accompanied the amendment did not explicitly address the examiner’s rejection set forth *supra*, counsel did state that “[t]here is support for the amendments to Claims 1 and 8 in Examples I and II ... of the specification” (DeRosa patented file, paper no. 3, p. 6). Example I is directed to preparing the derivatized graft copolymer containing grafted glycidyl methacrylate. Example II reacts the graft copolymer of Example I with a modified 1,3,4-thiadiazole containing a substituted phenol. Neither of these examples disclose reacting a mixture of 1,3,4-thiadiazole nucleophiles with the graft copolymer. Following the response to the first action on the merits, the examiner allowed all claims in the application.

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In view of the record in the patented file, we must conclude that the language added to claim 1 of DeRosa was intended to be a Markush Group and that the grafted copolymer is reacted with only one component selected from the group of nucleophiles (i), (ii) and (iii). We fail to find any disclosure in DeRosa that two or more nucleophiles can be mixed with and added to the grafted copolymer. *See In re Benno*, 768 F.2d 1340, 1346, 226 USPQ 683, 686 (Fed. Cir. 1985) (“The scope of a patent’s claims determines what infringes the patent; it is no measure of what it discloses”). For these reasons, we find that DeRosa does not anticipate the claimed subject matter set forth in claims 1, 3, 5, 6 and 9.

OBVIOUSNESS OVER MIGDAL AND KAPUSCINSKI

The examiner rejected claims 1-6 and 9 under 35 U.S.C. § 103 as being unpatentable over Migdal in view of Kapuscinski. We will not sustain this rejection.

Migdal discloses a lubricating oil additive which provides antioxidant properties wherein an ethylenically unsaturated carboxylic acid material such as maleic anhydride is grafted onto an ethylene-propylene polymeric backbone to form a graft copolymer which is then amidized with an N-arylphenylenediamine (abstract; col. 1, lines 12-15; col. 2, lines 36-67; col. 5, lines 43-50). Migdal does suggest reacting a mixture of antioxidants with the graft copolymer. Example IV of Migdal discloses reacting N-phenyl-p-phenylenediamine and N,N-dimethylaminopropylamine with the graft copolymer. Kapuscinski discloses a lubricating oil additive comprising a backbone polymer such as an ethylene-propylene copolymer onto which is grafted an isocyanoethyl meth-acrylate which is amidized with an antioxidant such as phenothiazine or N,N-dimethylamino-propylamine (abstract; claims 1 and 10; col. 6,

lines 8-13, 43-44, 54, 56-57 and 66). We conclude that a person having ordinary skill in the art would have been motivated from the combined teachings of Migdal and Kapuscinski to amidize the grafted copolymer with two antioxidants such as N-phenyl-p-phenylenediamine and phenothiazine. We find that the prior art relied upon by the examiner establishes a *prima facie* case of obviousness. However, we find that appellants' examples and Figure I presents sufficient evidence of a synergistic effect to rebut the *prima facie* case.

Figure I shows a substantial increase in viscosity over a period of time for a graft copolymer amidized with either an amine alkyl phenothiazine and N-phenyl-p-phenylenediamine. However, when the two components are combined, the change in viscosity over the same time period of time is significantly less. This result is not suggested or expected over the teachings of the prior art. Accordingly, appellants have met their burden of presenting sufficient objective evidence to show that the claimed invention patentably distinguishes over Migdal and Kapuscinski. Accordingly, the examiner's rejection is reversed.

INDEFINITENESS

The examiner rejected claims 1-6 and 9 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as their invention on the ground that the claims "fail to particularly point out and distinctly claim the derivatized copolymer additive" (answer: p.4). The expression "derivatized copolymer additive" does not appear in any of the claims on appeal. In response to appellants' arguments in the substitute brief, the

examiner stated that

the terms “pendant functional groups”, “their derivatives” (claim 3, line 2) and “aromatic amine antioxidant” fail to particularly point out and distinctly claim the invention. One having ordinary skill in the art would not be able to ascertain the limits and bounds of a claim containing the above terms. Especially when considered in view of the phrase “which forms synergistic antioxidant composition” (claim 1, line 2) and the total lack of a definition as to what constitutes a synergistic antioxidant composition, i.e., 10% improvement, 50% improvement, 100% improve-ment [sic], or some other, [sic] undefined amount? [sic] [Answer: p. 7.]

We will not sustain this rejection. The examiner has not explained why one having ordinary skill in the art would find the expression “which forms synergistic antioxidant composition” indefinite. The term synergism means the “action of two or more substances ... to achieve an effect of which each is individually incapable.”² Since according to appellants the two claimed antioxidant groups achieve a synergistic effect when on the same polymer backbone, the expression could only mean that the two groups combined form a polymer which has greater antioxidant properties than each group alone on the same polymer backbone. Thus, we do not find that one having ordinary skill in the art would have found the expression indefinite. The examiner asserts that the phrases “pendent functional groups,” “their derivatives” and “aromatic amine antioxidant” are indefinite. The examiner’s reason for objecting to these phrases is a conclusionary. He has not explained how he arrived at this conclusion, i.e. why a person having ordinary skill in the art would not be able to ascertain the limits and bounds of the claims containing the objected to phrases.

The legal standard for indefiniteness under the second paragraph of 35 U.S.C. § 112 is whether

²*The American Heritage Dictionary*, Second College Edition, Houghton Mifflin Company, Boston, Mass., page 1233 (1982).

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a claim reasonably apprises those of skill in the art of its scope. *See Amgen Inc. v. Chugai Pharmaceutical Co., Ltd.*, 927 F.2d 1200, 1217, 18 USPQ2d 1016, 1030 (Fed. Cir. 1991), *cert. denied sub nom., Genetics Inst., Inc. v. Amgen, Inc.*, 112 S.Ct. 169 (1991). The definiteness of the language employed must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and the application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. *See In re Angstadt*, 537 F.2d 498, 501, 190 USPQ 214, 217 (CCPA 1976). On the record before us, the examiner has failed to provide such an analysis. Accordingly, the examiner's rejection under the second paragraph of 35 U.S.C. § 112 for indefiniteness is reversed.

Conclusion

For the reasons given above, we reverse the examiner's rejection of claims 1, 3, 5, 6 and 9 under 35 U.S.C. § 102(e) and the examiner's rejections of claims 1-6 and 9 under 35 U.S.C. §§ 103 and 112.

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No time period for taking any subsequent action in connection with this appeal may be extended
under 37 CFR 1.136(a).

REVERSED

JOHN D. SMITH)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
CAMERON WEIFFENBACH)	APPEALS AND
Administrative Patent Judge)	INTERFERENCES
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